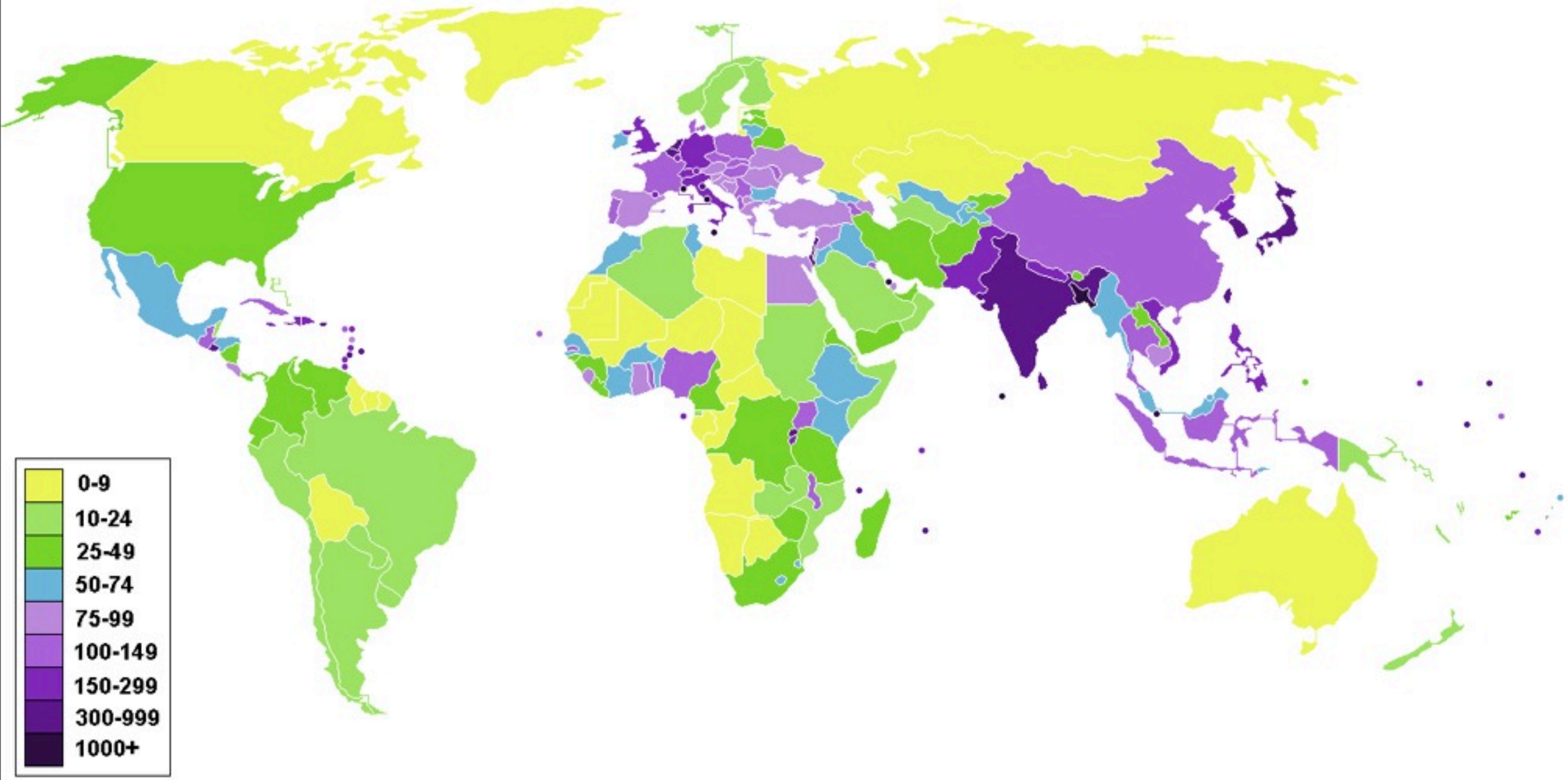
pengantar kajian
kota dan permukiman

week 2
urban problems: density

Ilya F Maharika
2010/2011

World Density



http://upload.wikimedia.org/wikipedia/commons/4/4d/World_population_density_map.PNG

The number of people living out their days in the squalor of a slum is almost one billion, the United Nations says - one-sixth of the world's population

Slum growth 'shames the world'
By Alex Kirby http://news.bbc.co.uk/2/hi/science/nature/3161812.stm

How many inhabitant is a city called “dense”?

The largest cities in the world by land area, population and density

Rank	City / Urban area	Country	Population	Land area (in sqKm)	Density (people per sqKm)
1	**Mumbai**	India	14,350,000	484	**29,650**
2	**Kolkata**	India	12,700,000	531	**23,900**
3	**Karachi**	Pakistan	9,800,000	518	**18,900**
4	**Lagos**	Nigeria	13,400,000	738	**18,150**
5	**Shenzhen**	China	8,000,000	466	**17,150**
6	**Seoul/Incheon**	South Korea	17,500,000	1,049	**16,700**
7	**Taipei**	Taiwan	5,700,000	376	**15,200**
8	**Chennai**	India	5,950,000	414	**14,350**
9	**Bogota**	Colombia	7,000,000	518	**13,500**
10	**Shanghai**	China	10,000,000	746	**13,400**
11	**Lima**	Peru	7,000,000	596	**11,750**
12	**Beijing**	China	8,614,000	748	**11,500**
13	**Delhi**	India	14,300,000	1,295	**11,050**
14	**Kinshasa**	Congo	5,000,000	469	**10,650**
15	**Manila**	Philippines	14,750,000	1,399	**10,550**
16	**Tehran**	Iran	7,250,000	686	**10,550**
17	**Jakarta**	Indonesia	14,250,000	1,360	**10,500**
18	**Tianjin**	China	4,750,000	453	**10,500**
19	**Bangalore**	India	5,400,000	534	**10,100**
20	**Ho Chi Minh City**	Vietnam	4,900,000	518	**9,450**

http://www.citymayors.com/statistics/largest-cities-density-125.html

The largest cities in the world by population

LARGEST URBAN AREAS IN THE WORLD: 2010

Threshold Population for Ranking	500,000

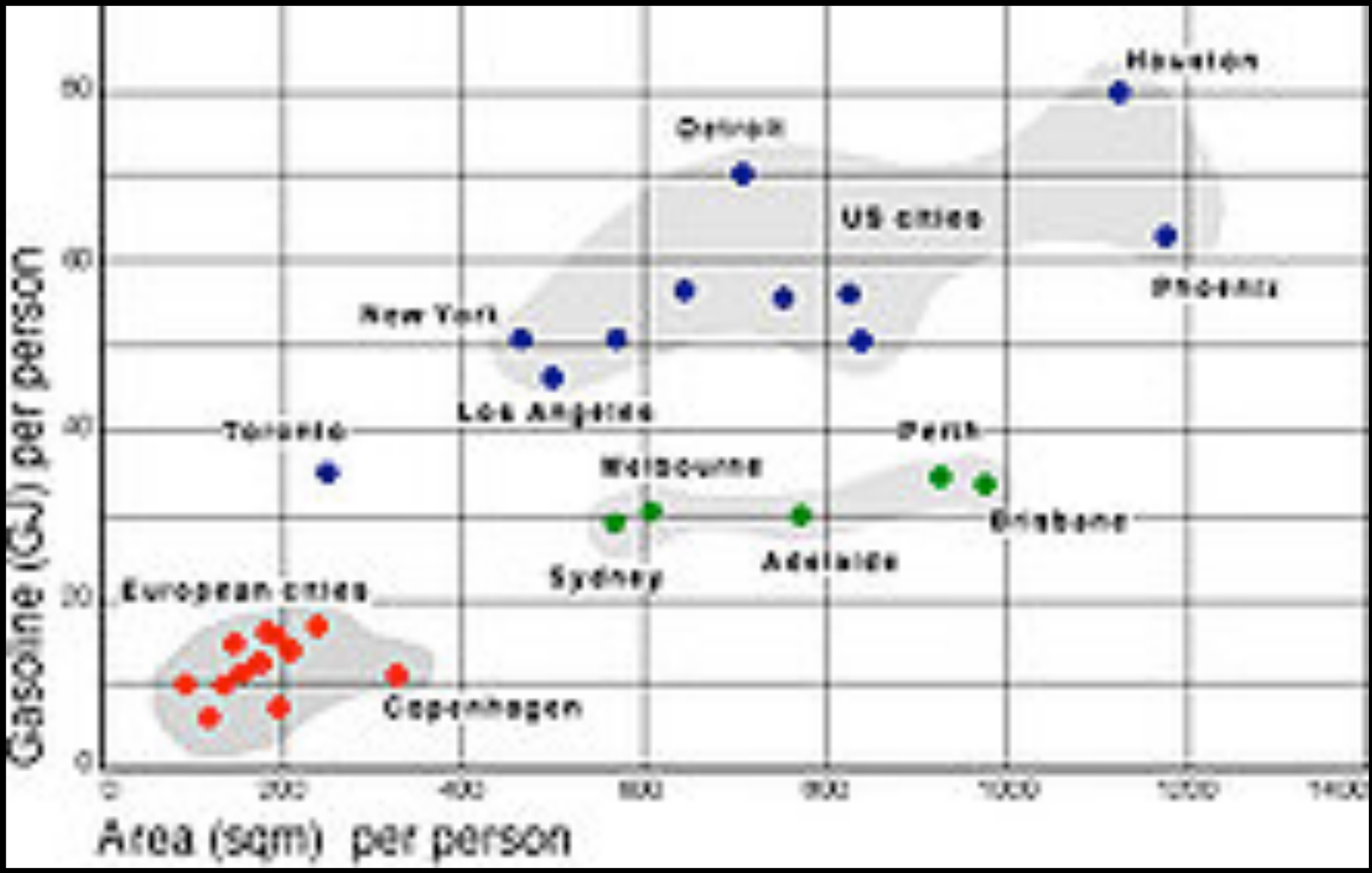
"#:" in "N" column indicates 2010 population estimate in "2010 or Base Year Population" column

Note: Density calculated using population midpoint between base and current year except where land area source is "A" where base year populat

Rank	Geography	Urban Area	2010 or Base Year Population	N	Base Year Population	Square Miles	Density (Note)	Square KMs
1	Japan	Tokyo-Yokohama	35,200,000	#	35,200,000	3,350	10,500	8,677
2	Indonesia	Jakarta	22,000,000	#	22,000,000	1,000	22,000	2,590
3	India	Mumbai, MAH	21,255,000	#	17,386,000	300	64,400	777
4	India	Delhi, DL-HR-UP	20,995,000	#	15,626,000	550	33,300	1,425
5	Philippines	Manila	20,795,000	#	19,375,000	550	36,500	1,425
6	United States	New York, NY-NJ-CT	20,610,000	#	19,712,000	4,349	4,500	11,264
7	Brazil	Sao Paulo	20,180,000	#	19,893,000	1,450	13,800	3,756
8	South Korea	Seoul-Incheon	19,910,000	#	19,500,000	750	26,300	1,943
9	Mexico	Mexico City	18,690,000	#	18,100,000	975	18,900	2,525
10	China	Shanghai, SHG	18,400,000	#	18,400,000	1,125	16,400	2,914

Demographia World Urban Areas: Population & Projections: Edition 6.1 (2010.07)

A graph showing the relationship between urban density and petrol use



http://en.wikipedia.org/wiki/Urban_density

How can we measure density?

Floor area ratio

The floor area ratio (FAR) or floor space index (FSI) is the ratio of the total floor area of buildings on a certain location to the size of the land of that location, or the limit imposed on such a ratio.
As a formula: Floor area ratio = (Total covered area on all floors of all buildings on a certain plot)/(Area of the plot)

http://www.citymayors.com/statistics/largest-cities-density-125.html

Floor area ratio

Floor area ratios are used as a measure of the intensity of the site being developed.

allowable FAR has a major impact on the value of the land. Higher allowable FAR yields higher land value.

http://www.citymayors.com/statistics/largest-cities-density-125.html

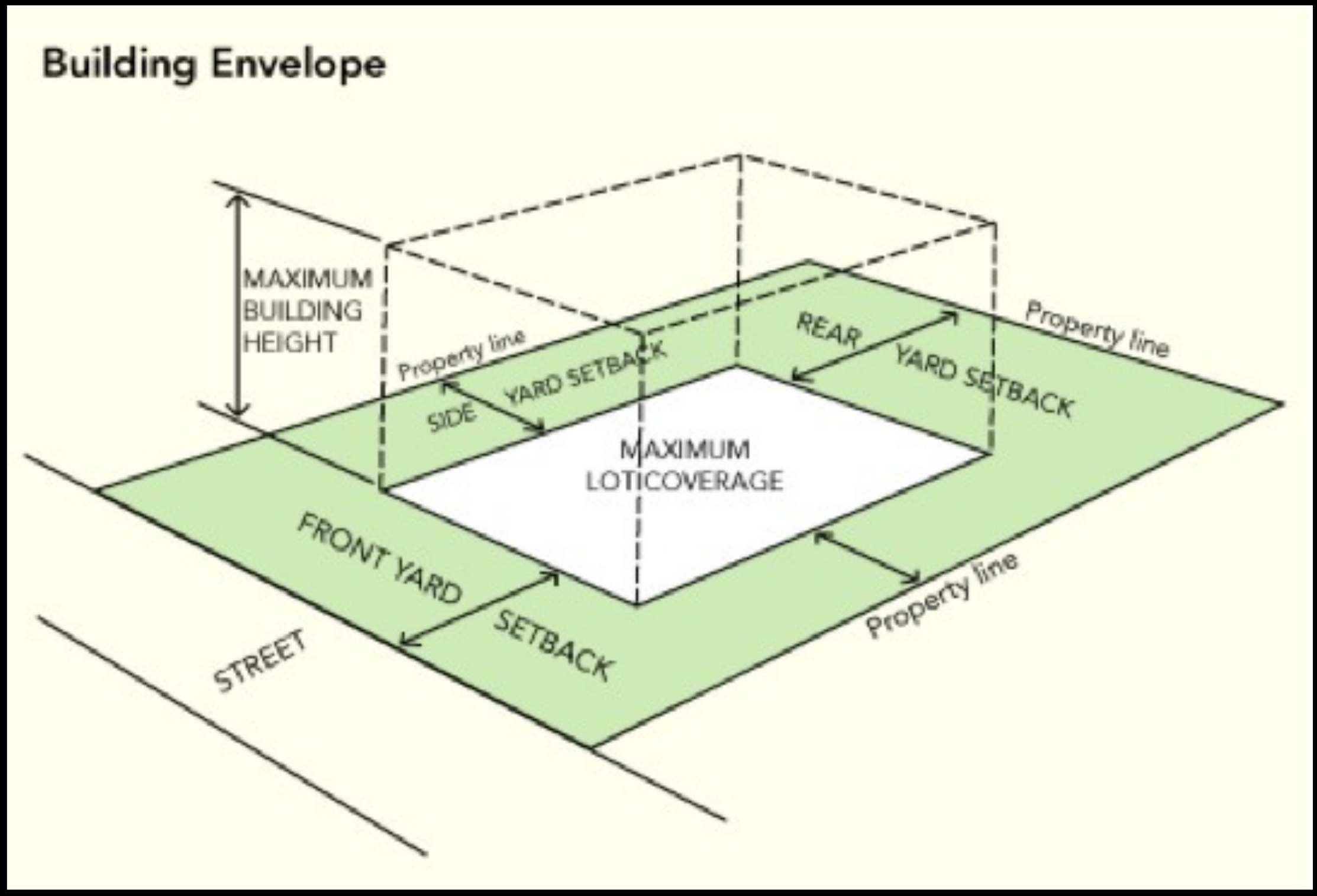
Floor area ratio as part of Zoning Policy

Zoning Regulates:

- **how tall** the building is (height)
- **how far from the street** or the neighboring lot the building is placed (setbacks or front, side and rear yards)
- **how much of the lot is covered** by the actual building (lot coverage, building footprint)
- **the amount of square footage** in the building compared to the square footage of the lot (floor-area ratio or FAR)

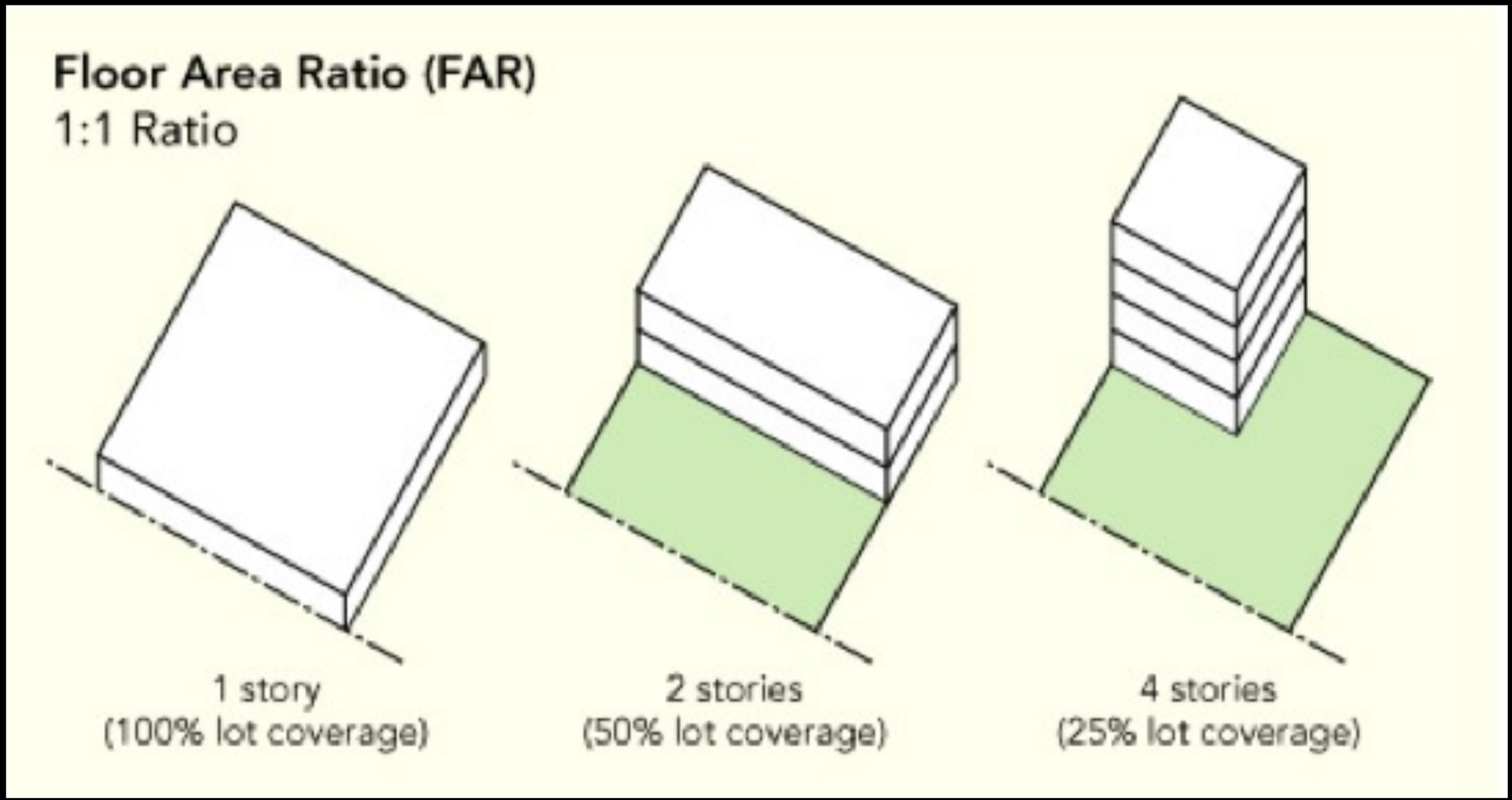
http://www.citymayors.com/statistics/largest-cities-density-125.html

building envelope



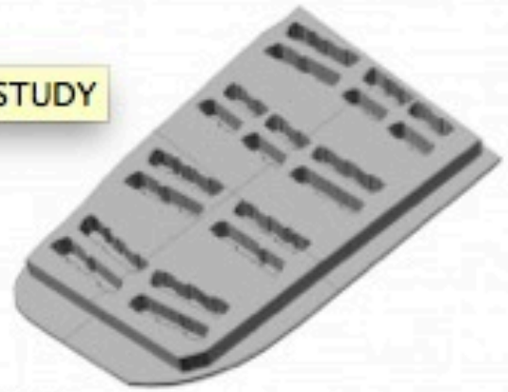
http://www.ci.la.ca.us/LAHD/curriculum/gettingfacts/planning/planconcepts.html

FAR

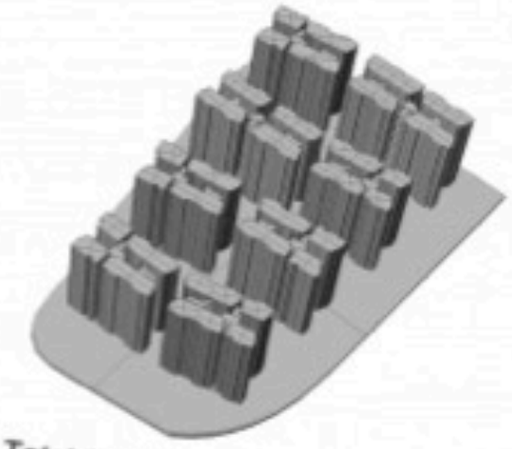


http://www.ci.la.ca.us/LAHD/curriculum/gettingfacts/planning/planconcepts.html

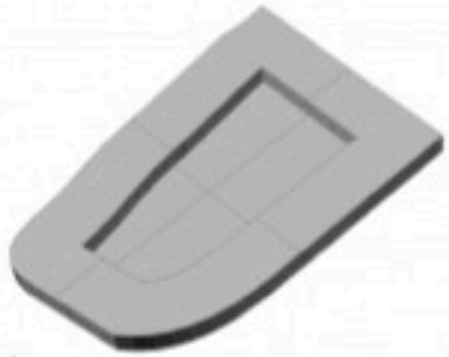
DENSITY STUDY



Total floor area: 72540 m2



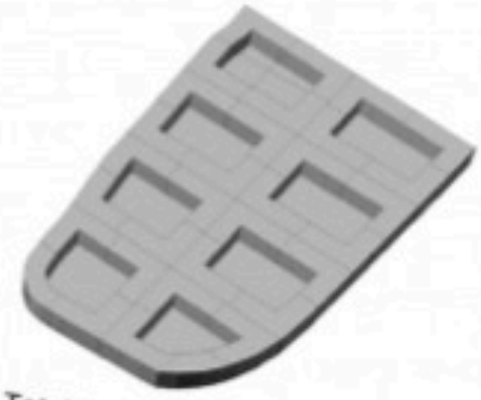
Total floor area: 72290 m2



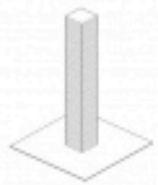
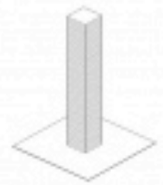
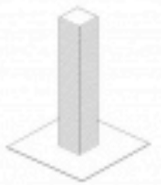
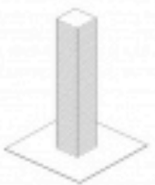
Total floor area: 78928 m2

Total floor area: 74338 m2

Total floor area: 72704 m2

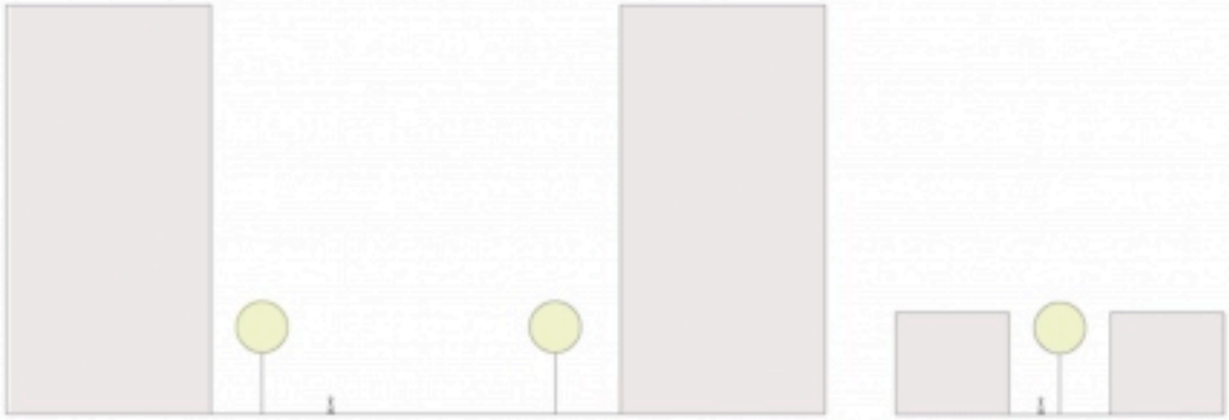


Total floor area: 74936 m2

Plot Ratio	2.5	3.0	3.5	4.0
50 Storeys Building Footprint (%)	 5%	 6%	 7%	 8%
40 Storeys Building Footprint (%)	 6.2%	 7.5%	 8.8%	 10%
30 Storeys Building Footprint (%)	 8.3%	 10%	 11.7%	 13.4%
20 Storeys Building Footprint (%)	 12.5%	 15%	 17.5%	 20%
10 Storeys Building Footprint (%)	 25%	 30%	 35%	 40%
4 Storeys Courtyard Building Footprint (%)	 62.5%	 75.0%	 87.5%	 100%
Void (%)	37.5%	25.0%	12.5%	0%
Width (m)	19.4m	25.0m	32.3m	100.0m

http://pythonians.wordpress.com/page/5/

HIGH-RISE	V.S.	LOW-RISE
LOW CONNECTIVITY WITH STREETS		STRONG CONNECTIVITY WITH STREETS
CONSTRUCTION CONSTRAINTS		LESSER CONSTRUCTION CONSTRAINT
• definitive planning • low adaptability e.g. HDB • unsuccessful attempt e.g. Capsule tower		• enable higher potential of adaptive planning • e.g. addition or subtractive of spaces to meet user's requirements



Section of high-rise v.s.. low-rise

Lvl 1: 0m

Lvl 2: 2.5m

Lvl 3: 5.0m

Lvl 4: 7.5m

Lvl 5: 10m

Lvl 6: 12.5m

Lvl 7: 15m

Lvl 8: 17.5m

Lvl 9: 20m

Visibility Study

http://pythonians.wordpress.com/page/5/

Floor area ratio: Criticism

- abdicating to floor area ratios (market forces) is **the opposite of aiming a community** toward something more than the sum of its parts.
- **a poor predictor of physical form,** should not be used when the objective is to conserve and enhance neighborhood character. Whereas traditional design standards (height, lot coverage and setbacks or build-to lines) enable anyone to make reasonably accurate predictions, recognize violations, and feel secure in their investment decisions.
- **carelessly combined** with traditional setbacks, assembled lots have a considerable advantage over individual lots, which has a negative effect on fine grained cities and the diversity of ownership

http://en.wikipedia.org/wiki/Floor_area_ratio

Floor area ratio in Indonesia: Koefisien Lantai Bangunan (KLB)

Tabel Koefisien Dasar Bangunan dan Koefisien Lantai Bangunan

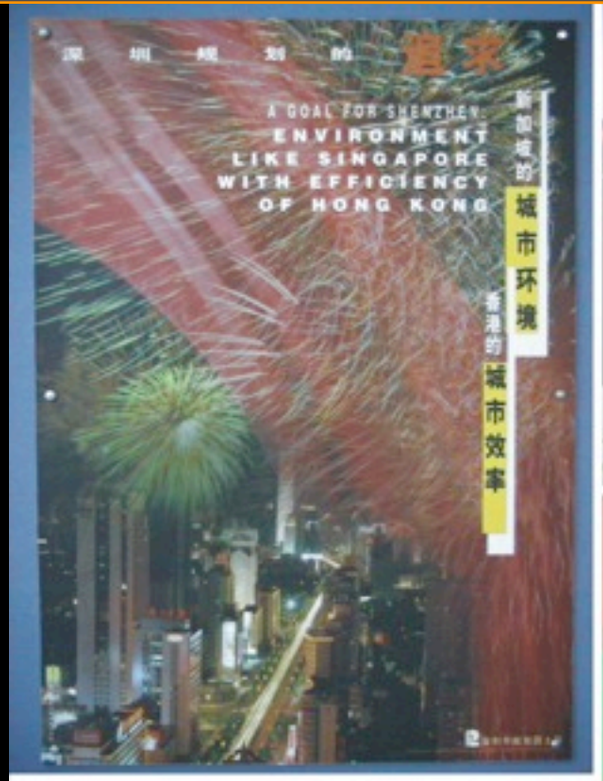
KDB (%)	KLB	Jumlah Tingkat	Jumlah Penduduk Jiwa
34	1,105	3-4	1528
28	1,20	4-5	1667
25	1,25	5	1736
20,2	1,3	6-7	1847
17,5	1,375	7-8	1909
16	1,4	8-9	1944
15	1,42	9-10	1972
14	1,436	10-11	1995
13	1,45	11-12	2014

SNI 03-2846-1992 Tata Cara Perencanaan Kepadatan Bangunan Lingkungan Rumah Susun Hunian

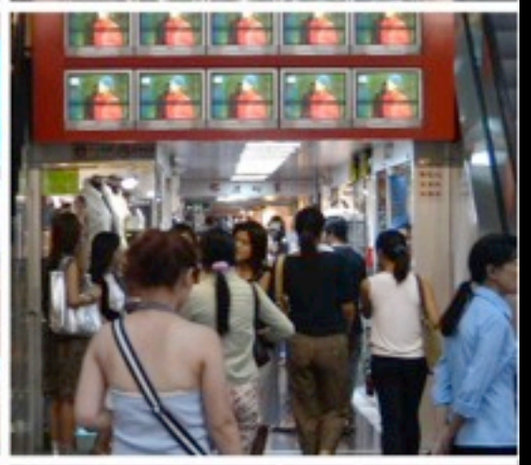
Tuesday, April 5, 2011

Tuesday, April 5, 2011

Tuesday, April 5, 2011



Politic of Urbanization - Urban Politics




探水井


Farmland
0 10 20 30
(Approximate)
Neighboring Block
Xiang / Alley
Xiang / Alley
Xiang / Alley
Xiang / Alley
Xiang / Alley
Xiang / Alley
Lu /Street
Neighboring Block
Lu /Street
Factory Buildings
To city's street
Factory Buildings

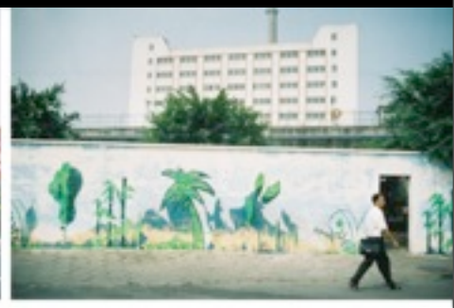

Hardspaces


24小時
Net Cafe
悠然堂
泰福


Wanggang Village















Tuesday, April 5, 2011


13924086588
办证


84055073
84456851


学 会 做 人
学 会 学 习
生 活
发
2121356004975


办证


库登机械修鞋

Mass production of space

Mass production of space

JA/BODETABEK's EXPLOSION

neighboring cities
new town
real estate
toll road
golf course

Tangerang
Jakarta
Bekasi
Depok
Bogor
(about 20 kilometer south)

New Town (or large real estate up to 500 hectare)
Real Estate (small and medium size)
Golf Course
Major / Toll Road

(Drawn by the author based on the Gunther W. Holtorf 2001
some planned features are also drawn)

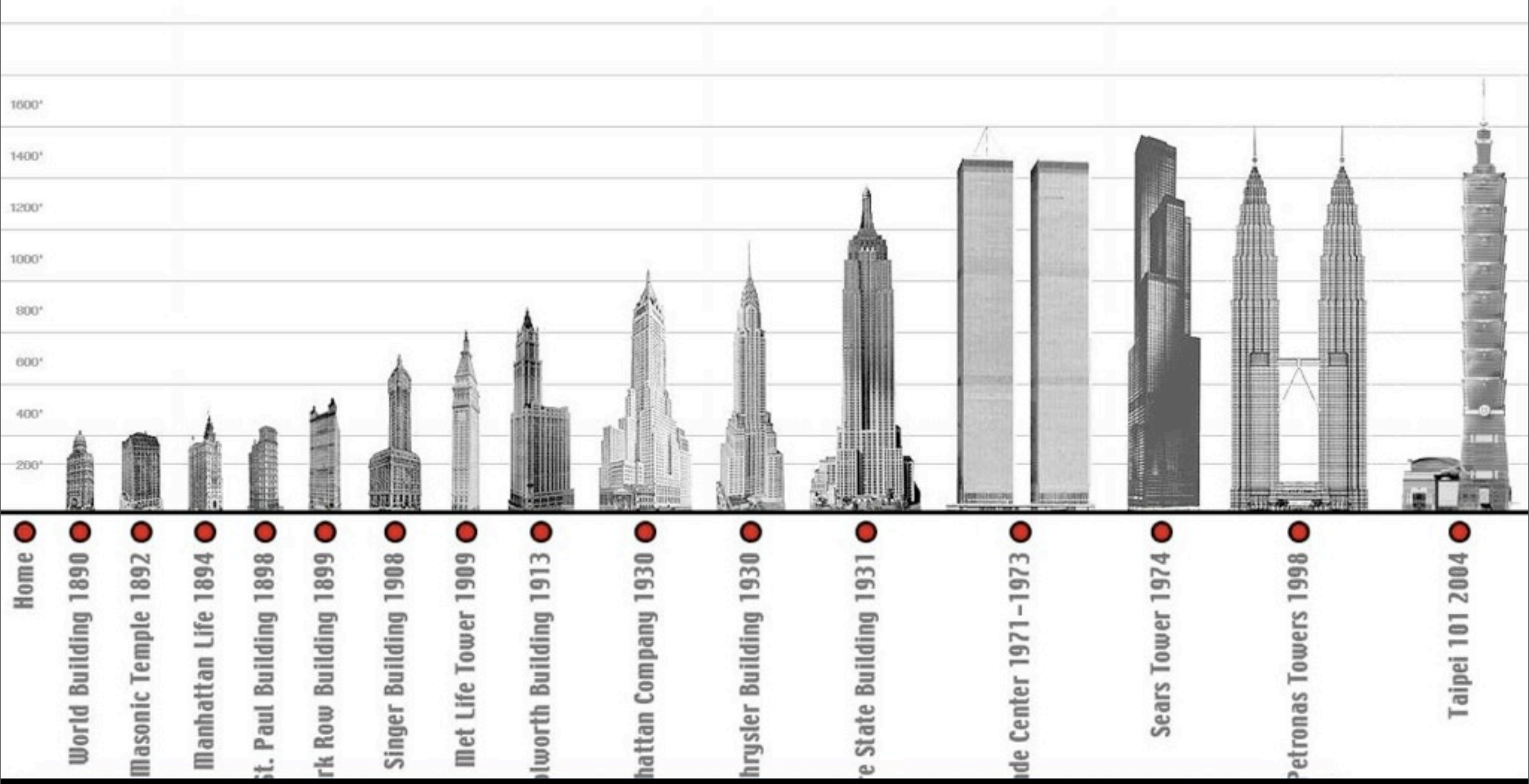
JABODETABEK 2003

Jakarta Bogor Depok Tangerang Bekasi

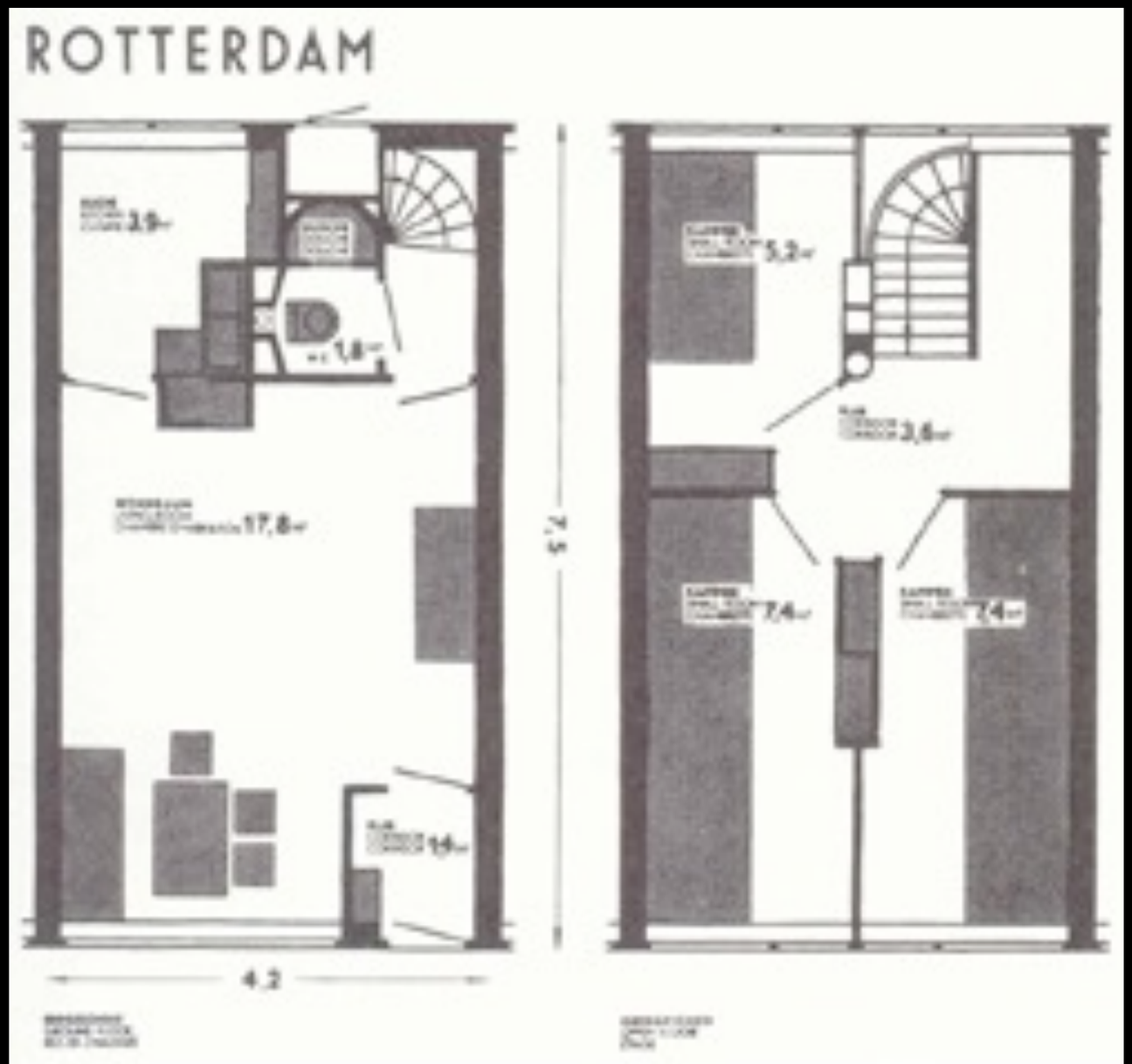
JAKARTA's ENCLAVES
Apartment and Mall

www.rose-hulman.edu/~delacova/ jakarta/jakarta-city.htm

WORLD'S TALLEST TOWERS: TIMELINE OF ALL SKYSCRAPERS HOLDING THE TITLE OF TALLEST BUILDING **IN THE WORLD** FROM 1890 TO THE PRESENT

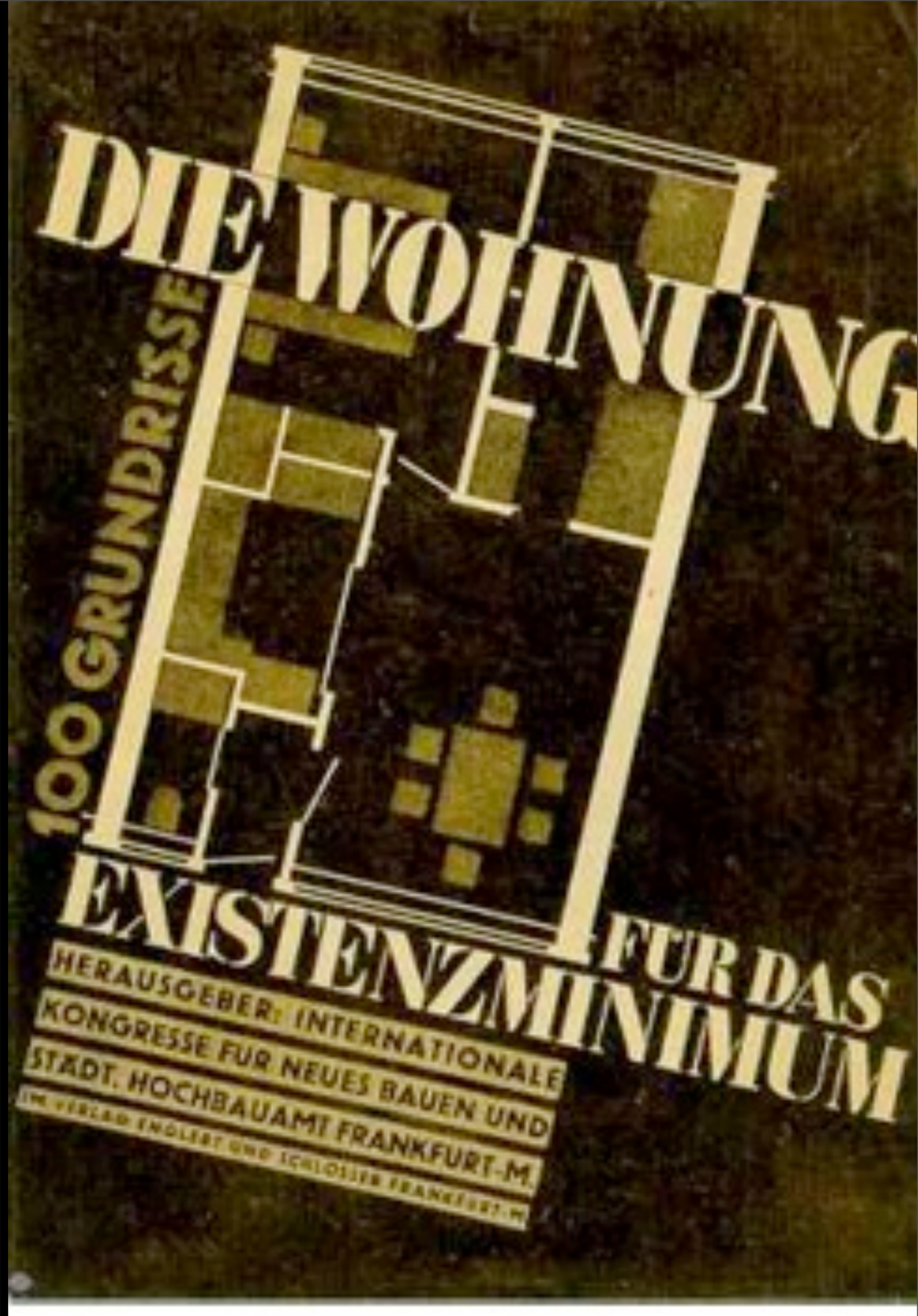


CIAM-Kongress mit dem Thema „Die Wohnung für das Existenzminimum“ („Dwellings for the lower income groups“). Die Leitfrage lautete: „Was braucht der Mensch?“. Die funktionale Antwort darauf war: „Licht, Luft, Raum und Wärme.“

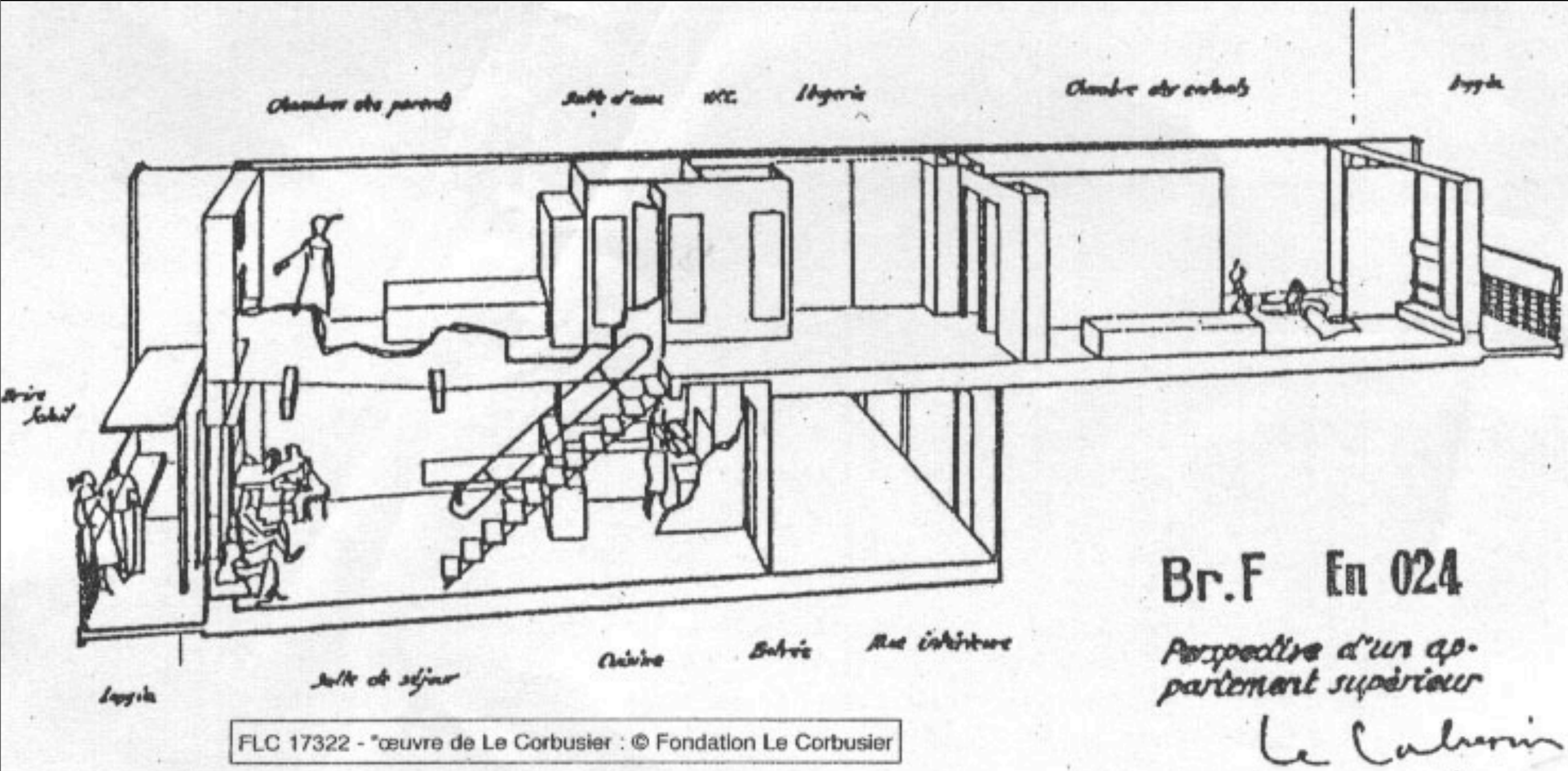


Entwurf einer Wohnung für das Existenzminimum, 1929-30

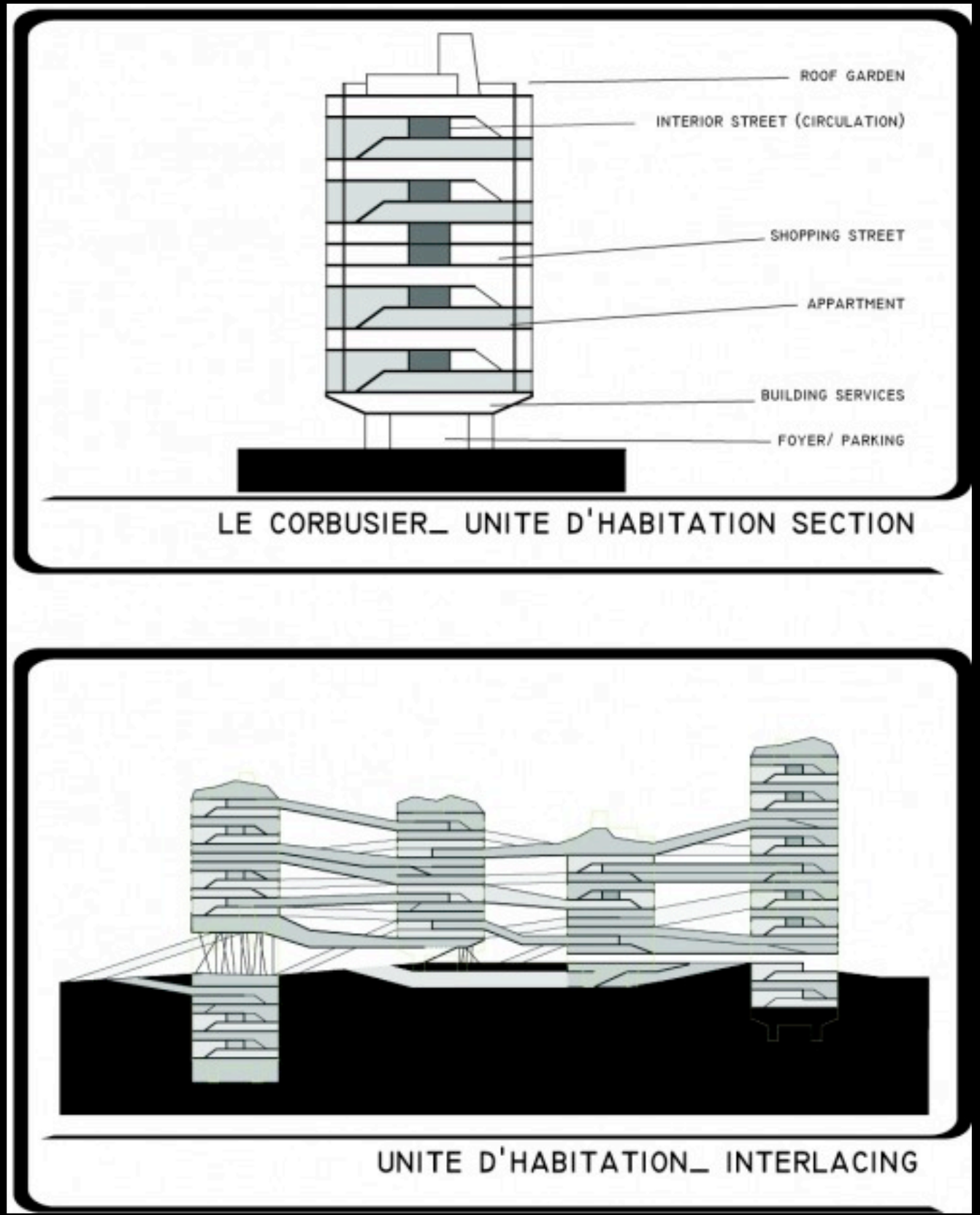
http://www.landesausstellung1905.de/index.php?id=263

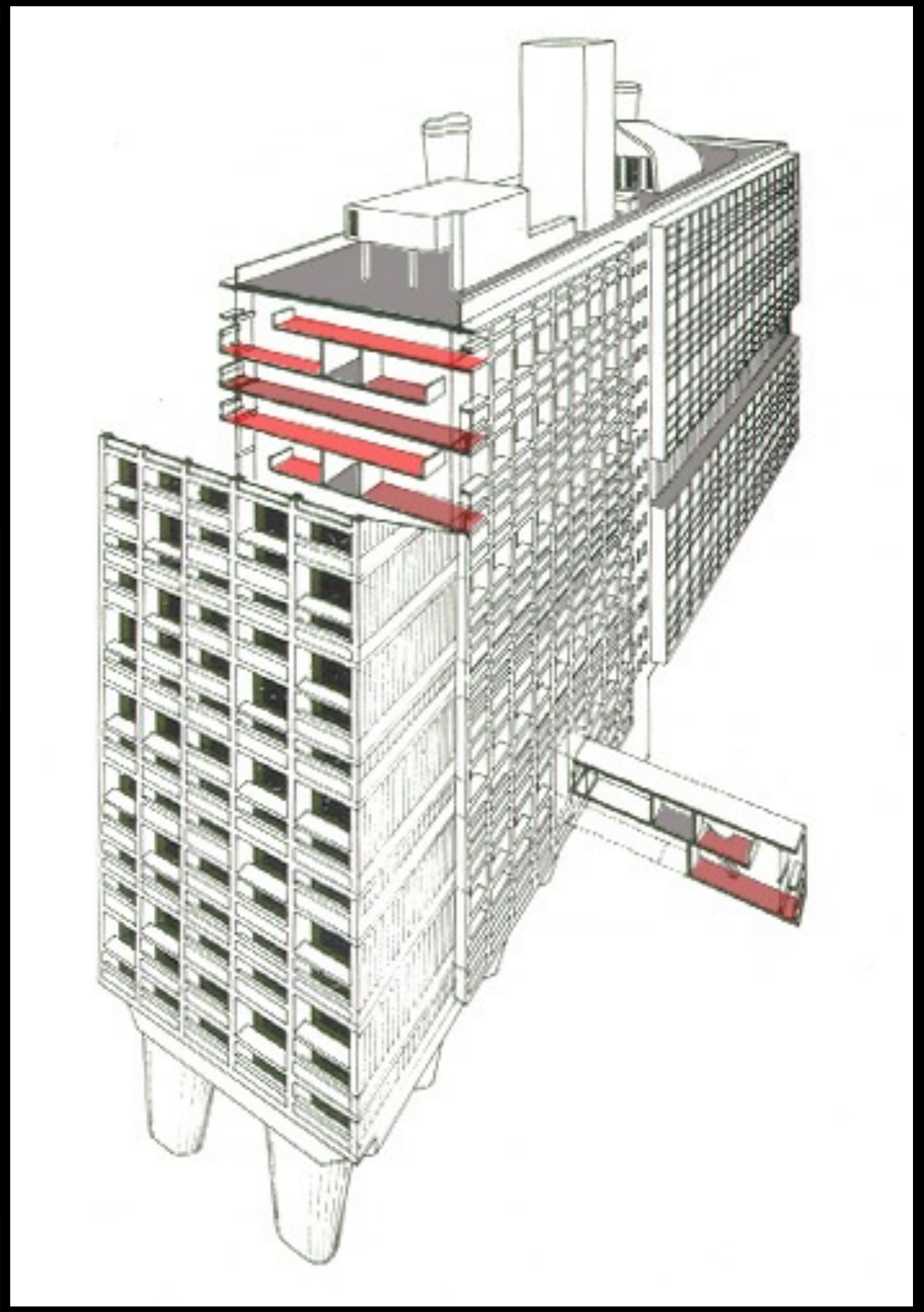


Buchumschlag, Die Wohnung für das Existenzminimum, 1930



Unite d'Habitation





http://spacecollective.org/userdata/YKs1vPQ4/117487l056/unite_diagrams.jpg

http://
www.cambridge2000.com/gallery/html/P3121926e.html

Urban Density and Sustainability Indicators

Environment Density Dimension	Built	Economic	Governance	Natural	Social
Demographic	Settlement	Incomes	Accountability	Consumption	Cohesion
Spatial	Form	Employment	Representation	Diversity	Ethnographies
Mass	Space	Investment	Democracy	Concentration	Community
Utility	Serviceability	Productivity	Rules/Values	Replenishment	Logistics
Time Space	Accessibility	Efficiency	Responsiveness	Resilience	Activity
Perceived	Habitability	Profitability	Accountability	Beauty	Wellbeing

Changes in Urban Density: Its Implications on the Sustainable Development of Australian Cities

Brian H Roberts
Emeritus Professor and Research Associate CSIRO Sustainable Eco Systems
Email: Brian.Roberts@canberra.edu.au
Phone: 0416041837

Nunc Architect

Pemenang Kompetisi Architectural Biennial Rotterdam 2009 (IABR)
and the Ikatan Arsitek Indonesia (Indonesian
Institute of Architects Jakarta Chapter

http://pythonians.wordpress.com/